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Boston's Proposed Metropolitan Park System.

OUR readers will remember that last summer we called attention to the appointment of a Metropolitan Park Commission by the Governor of Massachusetts to inquire into the needs of the towns and cities in the vicinity of Boston in the way of open spaces. This commission has just submitted a report, which, with the accompanying papers, forms a volume of exceptional value and attractiveness, with its numerous maps and plans, and its handsome illustrations depicting various features of the charming natural scenery of the Boston basin, together with a few graphic examples of things as they should not be, and some corresponding examples of things at home and abroad to show what they should be.

The commissioners have followed the lines which, on the occasion of their appointment, we indicated should be followed, and which, indeed, in an intelligent consideration of the question, they could hardly help following. The report of the commissioners themselves is a brief elucidation of the legislation they recommend. For full details of the results of their investigations and the studies based thereupon, they refer to the elaborate reports of the secretary and the landscape-architect of the commission, Mr. Sylvester Baxter and Mr. Charles Eliot, respectively.

Every one who has had occasion to consider the questions involved in a proper administration of the affairs that mutually concern a great city and its surrounding communities, must be impressed with the need of an effective form of political organization to deal with these matters. The commissioners are thus very naturally impressed with the necessity of some definite plan of metropolitan organization. One of the most important features of a common metropolitan interest is that of parks and other open spaces, the utility of which cannot be determined upon arbitrary political boundary lines. Boston, for instance, has been enabled to create a magnificent park-system within its own limits, but the needs of the remaining portions of the metropolitan community have, with a few exceptions of very recent date, been almost entirely neglected. To remedy this difficulty the commissioners recommend the establishment of a "metropolitan parks district," comprising twelve cities and twenty-four towns, containing to-day about 900,000 inhabitants. The proposed legislation provides for the appointment by the Governor of a permanent Metropolitan Parks Commission, the members to serve without pay, and appointed respectively for terms of one, two, three, four and five years, annually thereafter, one member to be appointed each year for a term of five years. To enable the acquiring of the various sites that might be agreed upon the state is to advance its credit to the amount of one million dollars, to be paid by the accumulation of a sinking fund, the charges for which, together with those for interest, are to be met through apportionment, by separate commissioners appointed for the purpose at intervals of five years, among the various cities and towns, according to the degree of their benefit. Boston's proportion for the first five years is fixed at fifty per cent. As the present commissioners have simply advisory functions, they wisely leave this matter of the selection of sites to the permanent commission, and content themselves merely with two definite recommendations: the reservation of the Middlesex Fells and of the Blue Hills, both of these cases appearing to them urgent. For the guidance of the permanent commission in its work they feel it sufficient to refer to the studies of the landscape-architect and the secretary. In the proposed act ample power is given to act in harmony with local park commissions, water boards, etc., and to make arrangements for the common administration of lands held by various public authorities.

In addition to the commissioners' bill the secretary recommends, as the result of his studies, three other measures. One of these is an addition to the General Park Act of the commonwealth, in substance the same as the Boulevard Act of Illinois, enabling park boards to take and improve, by consent of local authorities and of the owners of a majority of their frontage, streets or parts of streets leading to parks. The second is a General Playground Act, which in substance meets a general want by enabling cities and towns to exceed their debt limits in procuring lands for playground purposes. The third is to encourage the building of tenement dwellings about enclosed playground and garden spaces by practically exempting such spaces from taxation through leasing them at a nominal rental to the local authorities for a term of years.

Subject for comment in many numbers of GARDEN AND FOREST might be found in the various aspects of the problem considered in the reports of Messrs. Eliot and Baxter. Mr. Eliot treats the subject from the standpoint of a professional adviser as delightfully as he does instructively. How thoroughly he is grounded in his art is shown in this concise paper, which impresses one with the feeling that he might have devoted a volume to the subject without exhausting either it or the reader's interest. In a summary of the physical and historical geography of the district he tells the story of the rock foundation, the glacial rubbish, the fresh waters and the sea, and how these have given it the strikingly attractive shape it presented until its human occupancy marred much of nature's handwork, while it has respected and added to the charm of other portions that point the way how to deal with the whole. He then studies the way in which this peculiar geography of the metropolitan district ought to govern the selection of the sites of recreation-grounds and open spaces for public use, lying as it does, even at this late day, between two wildernesses, "on the one hand the untamed heights of the rock-hills, on the other the untamable sea." And he says: "Thus has nature placed and preserved, at the very gates of Boston, riches of scenery such as Chicago or Denver or many another American city would give millions to create, if it were possible."

In accordance with the governing considerations laid down in this study, Mr. Eliot reviews the opportunities

that still present themselves for creating new open spaces among the rock-hills along the ponds and streams, and by the bay and the sea. By logical, natural steps he leads the way from the hills down the river-valleys to the sea, and along and near the courses thus traced he finds sites ready at hand, and demanding for their utilization little more than a restoration to their original conditions—something not of extreme difficulty in the accomplishment. The courses of the three rivers, the Mystic, the Charles and the Neponset, present the pleasantest ways to the sea from the interior. This would, therefore, give three valley parkways with adjacent recreation-grounds as opportunity might offer. These would lead to the bay down from the rock-hill regions, where we would have the Lynn Woods, already established, on the north; then the Middlesex Fells reservation of 2,500 to 3,000 acres, also on the north; Prospect Hill, in Waltham, already provided for by local action in that city; the Muddy Pond Woods in Hyde Park, and the West Roxbury district of Boston on the south, corresponding to the Middlesex Fells in relative position, and then the noble range of the Blue Hills in the same direction, also corresponding to the Lynn Woods. Then with the northerly sea-shore reserved from Winthrop Great Head and along Revere Beach to Lynn, and perhaps Nantasket to the southward of the bay, together with two or three islands in the bay, the future of Boston would be well provided for, so far as open spaces are concerned.

Mr. Baxter's report deals largely with the problem from the point of view of political and social economy. The careful investigation of the territory made by the commission leads him to consider the need of an ample provision for open spaces, and the difficulties at present in the way of obtaining them. The logical method of solving the problem is pointed out, and the special advantages that will follow the adoption of this plan are discussed. He carefully examines the separate features under consideration, and, in treating of the Charles River, special stress is laid upon the necessity of securing public ownership of the banks, as well as control of the stream, in order to deal with the serious menace of malaria now threatened in that neighborhood. The questions of special pleasureways, or roads for light traffic, and of local pleasure-grounds, playgrounds and breathing-spaces, are separately dealt with.

It is along the lines indicated in these studies that a permanent commission would naturally work. While two years ago it would have seemed almost chimerical to expect favorable action upon such a far-seeing, enlightened and truly conservative proposition, public sentiment has now been so well developed by the educative forces at work, that it would really be surprising if the commission's recommendations were not agreed to. And, if the outcome proves what it should be, Boston will be fortunate in the most comprehensive dealing with the park problem that any great city has yet been favored with. The work of this metropolitan Board must be of great value to every important American city; it points out the way to deal with a great question in a broad and comprehensive manner; and it should be studied by every one interested in the growth and prosperity of urban populations.

In the current number of *The Atlantic Monthly* Mr. Julius H. Ward discusses, in a clear and forcible manner, the value of the White Mountain forests and the dangers which threaten them, and shows conclusively the disastrous results which will follow the destruction of these natural protectors of the water-supply of northern New England. Unlike most writers on the forestry question in the United States, Mr. Ward has a scheme to propose, which, if it can be carried out, will go far to prevent the denudation of northern New Hampshire.

The great difficulty which reformers in the care and management of forest-property in the eastern states have to encounter is found in the fact that it is exclusively in the hands of individuals, and that the state cannot interfere with it without infringing on private rights. The forests which cover the White Mountains, protecting the streams which rise among them, and making them attractive places for summer visitors, belong to individuals and lumber-corporations, who have bought them for the purpose of converting them as quickly and advantageously as possible into money without reference to the future results of their operations. In doing this they are exerting an undeniable right, and any attempt to prevent a man from cutting down his own trees would, at this time, be considered an unwarrantable piece of tyranny to be resisted to the utmost. But, as Mr. Ward points out, if only trees of a size which would represent the average development of the species at its most valuable commercial period were cut, the forest, instead of being destroyed, would be improved and perpetuated; and he would purchase, by the state, through a forest commission, from owners of woodland in certain designated regions, the agreement that they would not cut trees below a certain size. The state, by such an arrangement, would acquire no title to the land and would have no control over the forest beyond seeing that the contract was fairly performed by the owners, who would have the right to cut and dispose of all mature timber which it might produce. In this way the forest in such parts of the state, as required, for various reasons, a forest-covering could be permanently preserved. Forest-land would produce a regular and permanent crop, and those advantages which the people of New Hampshire derive from their forests would be saved to them.

The compensation to land-owners might take in part the form of a remittance of taxes, to be refunded to the different towns from the state treasury. Of the money benefit which the people of New Hampshire derive from their forests there can be no question; they preserve their streams and bring millions of dollars into the state every year, spent by travelers who come into it to enjoy the beauty of the White Mountains; and they are capable, if properly managed, of producing a large and constant supply of lumber. It is proper, then, that the cost of purchasing their immunity from destruction be borne by the entire population of the state, and for doing this economically and quickly no better plan than that proposed by Mr. Ward has been suggested.

Notes of a Summer Journey in Europe.—XXIII.

It was a great pleasure to me to visit the far-famed Knap Hill Nurseries and inspect their contents under the guidance of Mr. Anthony Waterer, the proprietor and veteran Rhododendron grower. The visitor in London desiring to see this establishment will find it an easy journey of about forty minutes by the South Western Railway from the Waterloo Station to Woking in Surrey. At the Woking Station, carriages may be taken to the nurseries, but if the traveler is a good walker he will enjoy the tramp through a quiet, peaceful country, and delight to linger by the roadsides, where many pretty wild plants abound, especially two or three species of Heaths. As one approaches the well-known nurseries, the native vegetation, the situation and the deep dark rich soil suggest a location unsurpassed for the successful cultivation of Rhododendrons. These plants are the great specialty here, although all other kinds of really hardy trees and shrubs and some of the best herbaceous plants are also raised in quantity and with care. There is no claim made that this place contains an arboretum or collection for public display, but fine specimens of many species of plants are frequently seen. One of the finest of uncommon trees is a splendid example of a Weeping Beech, whose branches spread over ninety feet. Our Magnolia glauca is here with a trunk a foot in diameter, and a nice specimen of the rather uncommon Kœlreuteria paniculata has a stem twenty inches through, is over thirty feet high, and has something of the general aspect of a Walnut-tree. Curiously enough, Magnolia macrophylla is here considered almost as tender as our great evergreen species of the south.

It is a pleasure and delight to the true horticulturist to see the healthy, honest way in which all the plants are grown in this nursery of over two hundred acres. No shiftlessness is

allowed, and everything inferior or lacking in hardiness is discarded to make room for something better. It is exceedingly gratifying to find a persistent effort made to get as many plants as possible on their own roots instead of resorting to grafting or budding. Our Colorado Blue Spruce (Picea pungens) is raised from seed and is not grafted; only richly glaucous seedlings are selected, the others being thrown away. It is well known that this species is very variable and sometimes comes out a dull green instead of the highly prized "blue" color of the foliage. Tsuga Pattoniana and the so-called T. Hookeriana, which are maintained to be distinct by some growers, are here both raised from the same lot of seed. Golden Yews are raised from seed, having been found to vary more in their peculiar varietal characteristics and to do better and prove hardier than when grown from cuttings. There are also variegated-leaved forms of our Ash-leaved Maple or Box-Elder raised on their own roots by layering whenever possible, though some budding has to be done to keep up with the demand. An attempt is made to grow all the choicer variations and hybrids of Lilacs on their own roots. Thus, all the suckers or new shoots which may come up from the ground will be of the kind originally purchased, a fact which amateur gardeners will appreciate if they have had any experience with hastily grafted stuff which is too often liable to be poor, and eventually to have the place of the scion usurped by strong growths of common Lilac or of Privet, the stocks commonly used in hasty propagation. For the same reasons some of the peculiar forms of our common Locust (Robinia Pseudacacia), such as Bessoniana, are grown on their own roots from cuttings. Such plants should only be planted, in this country at least, where the original stem is too likely to be destroyed by borers.

A deep red flowered sport of the dwarf Spiræa Bumalda is considered quite an acquisition, and it may be found in bloom from early July until the end of the season. A fine lot of the comparatively new Hypericum Moserianum was at this time, the last week of September, flowering freely and making a pretty show. This is scarcely hardy enough to withstand the severity of our northern winters, but south of New England it ought to thrive and be a great acquisition. It originated in France, and is said to be a hybrid between the handsome dwarf H. calycinum and H. patulum, both of which will live in New England, but it lacks the hardiness of such native American species as H. aureum and H. Kalmianum. The flowers of H. Moserianum are about two inches across; the petals are broad and rounded, and of a rich chrome-yellow color, with the usual large tuft of yellow stamens red-tipped.

But while some of these shrubs may be seen in other nurseries, I know of no place where the thoroughly hardy strains of Azaleas and Rhododendrons are so faithfully and so thoroughly grown and propagated as here. Everything tender, everything lacking in foliage, or with imperfect bloom, is set aside to make room for only the very best. Mr. Waterer has for many years given much attention to hybridizing and crossing between these plants, with the result that he has originated a great many of the finest forms in modern collections. Many of these hybrids and crosses have proved thoroughly hardy when introduced into our American gardens as far north as any of our native species of Rhododendron can be found growing naturally. This should be expected, because Mr. Waterer depends mainly on R. Catawbiense in deriving new forms, while R. maximum is also very much used, both plants probably the hardiest of any species of their class in existence, which can be generally and profitably cultivated. Of R. Catawbiense I noted a very large plant, which is said to be between 75 and 100 years old, and which has played an important part in a very large proportion of the hybridizations.

The deciduous Rhododendrons or Azaleas also receive due attention, and apparently those heretofore most used in obtaining the hardiest forms have been such species as our own R. calendulaceum and the Asiatic R. Sinense. Something has been done with R. occidentale and others, and in such skillful hands as Mr. Waterer's we may expect to see some interesting hybrids, from the peculiar, hardy and as yet little-known R. Vaseyi. I was told that this last species has so far not proved altogether satisfactory at Knap Hill, the very early blossoms being nipped by frost.

Immense quantities of both Rhododendrons and Azaleas are grown on their own roots, and grafting is avoided as much as possible. The nursery is so old and Rhododendron culture has so long been a special feature of it, that the proprietor is enabled to raise fine stocky plants on roots of their own in a way that cannot be afforded by many competitors. For instance, great full-grown plants, perhaps six or eight feet high, of some desirable kinds are sacrificed, and almost entirely buried in the rich peaty loam, so that only the tips of all the branches are seen above ground. By this system of layering, two years must pass before the plants are disturbed, and by this time each tip is a fine vigorous bush, ready to be transplanted anywhere, and bearing blossom-buds. Where it is necessary, in order to increase stock, to resort to grafting, the stock and scion are joined at a point well below the ground, so that eventually the scion may put forth roots of its own. Grafted plants answer best for pot-plants for forcing. There is a considerable demand for standard Rhododendron plants, that is, grown into tree form with a long clean stem. Such specimens are procured by grafting high on stems of some tall-growing kind; the variety here found best suited for this purpose is Album elegans, which is of very fast upright growth. Rhododendrons in plants of all sizes are to be had here, and every year in June the firm has splendid exhibitions in some of the public parks and gardens of London. Many of our American private gardens which are famous for their Rhododendrons are largely under obligations to this establishment for many of their best and hardiest plants.

A visit to Knap Hill at any season cannot fail to be of interest to all cultivators and admirers of healthy vigorous plants; but any one so fortunate as to land here in early summer, in the best of the Rhododendron season, will be rewarded by a display of color to be seen in few gardens in any country.

Arnold Arboretum. *J. G. Jack.*

Some Texas Plants in a Texas Garden.

MALVAVISCUS DRUMMONDII is known in Texas as Wild Fuchsia. It is a perennial, with a long tap-root and numerous sub-erect stems two feet high, and branching freely, each ultimate division terminating in a bell-shaped flower, with the stamens extending, Fuchsia-like, beyond the corolla, which is bright scarlet, and makes an agreeable contrast with the deep green of the leaves. The flower is succeeded by a red berry of mawkish taste, relished by children in the south-western part of the state, where this plant grows wild. In cultivation it is a free bloomer, the flowers appearing in great numbers from May until the first killing frost. It grows readily from seed, and generally flowers the first year.

Nyctaginia capitata is another fine plant of the dry region of the south-west. It is a perennial, with fleshy roots and numerous decumbent stems; the flowers are dazzling red and produced in dense long-stalked heads from the axils of the leaves; they are trumpet-shaped, and the stamens, being much longer than the corolla, add considerably to their beauty and singular appearance. The leaves are cordate, and the whole plant is of a grayish color and covered with small hairs. Nyctaginia flowers all summer, and the only objectionable thing we find about it is that the flowers are too sweet-scented. It may be propagated by root divisions and by seeds.

Mentzelia ornata is a very remarkable and beautiful biennial, or, rarely perennial, plant. Its long deep root permits it to withstand severe drought; the main stem is stout and straight, with many branches, which usually form a perfect pyramid some three feet high, covered all summer with immense flowers which resemble those of the Night-blooming Cereus; they are white, with a wealth of beautiful yellow stamens, and appear only during the night or on dark days, the corollas opening during two successive nights. I have counted as many as fifty flowers open at one time on a single specimen. When the plant is in full bloom it is a charming object, and the sweet fragrance of its beautiful flowers adds to its merit. Sometimes, however, it is less attractive, for in very dry and hot seasons the leaves are apt to shrivel up, when the whole plant presents a dead appearance during the day, although at night the bright and beautiful flowers appear in spite of any drought. It can only be propagated by seed, and flowers only the second year, which it rarely survives. The only spot where I have ever found M. ornata growing wild in Texas was on Fish Creek, in Dallas County, and there were only a dozen plants. There are several other species of the genus growing in this state, most of them with yellow flowers. M. nuda, which grows in the upper Brazos country, produces white flowers, although they are not so large as those of M. ornata.

Callirrhoë involucrata is a good garden-plant; it is very common in rich sandy soil, and is a perennial with a root which looks like a diminutive turnip; it produces several decumbent stems and large, solitary, red-purple flowers on long stems from the axils of every leaf. Between April and October this plant is rarely without a flower.

Scutellaria brevifolia is a native of Dallas County; it is a neat

compact plant of rigid appearance, from six inches to a foot high. It produces large dark purple flowers in terminal spikes, and remains in flower during a large part of the summer. It is a perennial, and grows naturally in nearly pure limestone, and will therefore be a good rock-garden plant.

Marshallia cœspitosa, like the last, grows on limestone-rock, and may also be found valuable in the rock-garden. It has been useful with me for edgings. It is a little Composite with a simple stem terminating in a solitary large white head, looking very much like a Scabiosa; it is a perennial with small spathulate, reticulate leaves. M. cœspitosa blooms only in the spring, and can be increased by root division and by seeds.

Pentstemon Cobæa is a well-known species with large magnificent flowers, shading very nearly from pure white or violet to red-purple, with darker markings. This plant appears to offer an opportunity for producing a new strain of garden-plants by intercrossing the different varieties or by hybridizing it with other species, several of which grow in Texas. P. Cobæa is quite abundant on upland prairies, and never fails, when it is in flower, to attract the attention of the most indifferent people. It blooms during the spring, and occasionally also in summer.

Dalea frutescens is a small shrub; the upper part of the stems, which are covered with elegant foliage, divides into numerous branchlets, which are literally covered with loose heads of pretty, bright violet-colored, pea-shaped flowers. The great merit of this fine plant is that it blooms late in the autumn. It grows naturally on rocky limestone prairies, but is not very common in this part of the state.

Yucca rupicola is a stately species with glaucous rigid leaves without threads on the margins. The flower-stem is branched, five to seven feet high, and sometimes bears as many as seventy pure white flowers, which appear in May and June. In several respects this species is superior as a garden-plant to Y. filamentosa. It grows wild on rocky limestone bluffs in western Texas.

Dallas, Tex. *J. Reverchon.*

Notes on the Forest Flora of Japan.—IV.

OF the true Magnolias three species grow naturally in Japan; two of these belong to the section of the genus which produces its flowers before the leaves appear and which has no representative in the flora of America; the third, Magnolia hypoleuca, bears some resemblance to our Magnolia tripetala. This tree is seen at its best in the damp rich forests which cover the low rolling hills of Yezo, where it sometimes rises to the height of a hundred feet and forms trunks two feet in diameter; on the other Japanese islands it is confined to the mountain forests, and apparently does not descend below 2,000 feet above the sea; and it is only in Yezo and on the high mountains in the extreme northern part of the main island that I have seen it of large size. In central Japan it rarely appears more than twenty or thirty feet high, although this can perhaps be accounted for by the fact that all trees in the accessible parts of the Japanese forests are cut as soon as they are large enough to be used for timber. Magnolia hypoleuca must in any case be considered a northern species, requiring a cold winter climate for its best development, and it probably does not thrive in regions where the ground is not covered with snow during several months of every year.

Magnolia hypoleuca is one of the largest and most beautiful of the deciduous-leaved Magnolias; in the early autumn when the cones of fruit, which exceed those of any of our species in size and are sometimes eight inches long, and are brilliant scarlet in color, stand out on the branches, it is the most striking feature of the forests of Hokkaido, which in variety and interest are not surpassed by those of any other part of the world. Like Magnolia tripetala, it is a tree of open habit, with long spreading irregularly contorted branches covered, as well as the trunk, with pale smooth bark. The leaves, however, are not as much crowded together at the ends of the flowering branches as they are in the American species, and are placed rather remotely on the branchlets; they are twelve or fourteen inches long and seven or eight inches broad, and on young vigorous trees are sometimes twice this size. On the upper surface they are light bright green and pale steel blue, or sometimes almost silvery on the lower, so that when raised by the wind they give the tree a light and cheerful appearance. A flowering branch of this species, obtained from a tree in Central Park, New York, was figured in the first volume of this journal (Fig. 49), in which the flowers are described as six or seven inches across when expanded, with creamy white petals and brilliant scarlet filaments; they appear in May and June, after the leaves are nearly full grown, and are very fragrant.

Magnolia hypoleuca is still rare in gardens, although it was sent by Mr. Thomas Hogg to the United States as early as 1865, and has been propagated in the Parsons' Nursery at Flushing. For many years it has flowered in the neighborhood of New York, and more recently in Mr. Hunnewell's garden at Wellesley, Massachusetts, and it is probable that it will thrive in any part of the northern United States, although, like other Hokkaido trees, it may suffer from summer and autumn droughts, which are unknown in Japan, where the rainfall during August and September is regular and abundant. As an ornamental tree Magnolia hypoleuca is superior to Magnolia tripetala in the fragrance of its flowers and in the coloring of its leaves; it is less desirable than Magnolia macrophylla, which surpasses its Japanese relative in form and in the size and beauty of its flowers and leaves, which are the largest produced on any plant of the Magnolia family, and larger than those of any other North American tree.

As a timber-tree Magnolia hypoleuca is valuable. The wood, like that of all the Magnolias, is straight-grained, soft, light-colored, and easily seasoned and worked. It is esteemed and much used in Japan for all sorts of objects which are covered with lacquer, especially sword-sheaths, which are usually made from it; in Hokkaido it is also used in the interior finish of houses and for boxes and cabinets, although harder woods are generally preferred for such purposes.

In the forests of Hokkaido a second species, Magnolia Kobus,* occurs. A figure, the first which has been made of this species except by Japanese artists, appears on page 66 of this issue; it is from a drawing of a specimen for which I am indebted to Professor Miyabe, of the Agricultural College at Sapparo.

Magnolia Kobus sometimes grows in the neighborhood of Sapparo to the height of seventy or eighty feet, and develops a tall straight trunk nearly two feet in diameter, covered with rather dark, slightly furrowed bark. The branches are short and slender, and form a narrow pyramidal head, which only becomes round-topped when the tree has attained its full size. The branchlets are more slender than those of most species of Magnolia, and are covered with dark reddish brown bark. The flowers appear near Sapparo in the middle of May, before the leaves, from acute buds an inch long, half an inch broad, and protected by long thickly matted pale hairs. They are from four to five inches across when fully expanded, with small acute caducous sepals and narrow, obovate, thin, creamy white petals; the stamens, with short broad filaments, are much shorter than the narrow acute cone of pistils. The leaves are obovate, gradually narrowed below, and abruptly contracted at the apex into short broad points; they are pubescent on the lower surface at first, especially on the stout midribs and primary veins, but at maturity are glabrous, or nearly so, and are bluish green, and rather lighter-colored on the lower than on the upper surface; they are six or seven inches long, three or four inches broad, rather conspicuously reticulate-veined, and are borne on stout petioles half an inch to an inch and a half in length. The fruit is slender, four or five inches long, and is often contorted or curved from the abortion of some of the seeds; it is dark brown, the carpels conspicuously marked with pale dots.

* Magnolia Kobus, DeCandolle, *Syst.* i., 456. Miquel, *Prol. Fl. Jap.*, 146. Maximowicz, *Mél. Biol.*, viii., 507. Franchet & Savatier, *Enum. Pl. Jap.*, i., 16.
Magnolia tomentosa, Thunberg, *Trans. Lin. Soc.*, ii., 336, in part.
Magnolia glauca, var. *a*, Thunberg, *Fl. Jap.*, 236.
Kobus, Kœmpfer, *Icon. Select.*, t. 42.

Magnolia Kobus is exceedingly common in the forests which clothe the hills in the neighborhood of Sapparo, where it grows to a larger size than in any part of Japan which I visited; near the shores of Volcano Bay it occurs in low swampy ground and in the neighborhood of streams, in situations very similar to those selected by Magnolia glauca in the United States. On the main island Magnolia Kobus is much less common than it is in Hokkaido, and I only met with it occasionally in the Hakone and Nikko Mountains at considerable elevations above the sea.

This handsome tree was introduced into the United States by Mr. Thomas Hogg, and was distributed from the Parsons' Nurseries as Magnolia Thurberi under the belief that it was an undescribed species. In cultivation it does not flower freely in the young state, although a tree in Mr. L. C. Moon's garden in Morrisville, Bucks County, Pennsylvania, has produced flowers for the last two or three years. In the Arnold Arboretum, where it was raised from seed sent from Sapparo fifteen years ago, it has as yet shown no sign of flowering, although it is the hardiest, most vigorous and most rapid-growing Magnolia in the collection.

I spent the 2d and 3d of October in company with Mr. James Herbert Veitch and Mr. Tokubuchi, an accomplished Japanese botanist, on Mount Hakkoda, an extinct volcano 6,000 feet high, which rises south-east and a few miles distant from Aomori, the most northern city of the main island of Japan. Botanically this was one of the most interesting excursions I made in Japan, and we were able to gather the seeds of a number of plants that we did not meet with elsewhere. On this mountain, in the very spot, perhaps, where Maries discovered this fine tree, we found Abies Mariesii covered with its large purple cones; and on the upper slopes saw the dwarf Pinus pumila, forming almost impenetrable thickets five or six feet high and many acres in area, and numerous alpine shrubs like Andromeda nana, Gaultheria pyroloides, Epigæa Asiatica, Phyllodoce taxifolia and Geum dryadoides. On this mountain, too, we established the most northern recorded station in Asia of the Hemlock (Tsuga diversifolia); and near the base Ilex crenata, Ilex Sugeroki, a handsome evergreen species with bright red fruit, the dwarf Ilex integra, var. leucoclada, and Daphniphyllum humile were very common; and here we were fortunate in finding good fruit and ripe seeds of Magnolia salicifolia, of which a figure from a drawing made by Mr. Faxon is published on page 67 of this issue.

On Mount Hakkoda Magnolia salicifolia is a common plant between 2,000 and 3,000 feet above the sea-level. As it appears here it is a slender tree fifteen or twenty feet high, with stems three or four inches thick and covered with pale smooth bark, and sometimes solitary, or more commonly in clusters of three or four. The branchlets are slender, light green at first, like those of Magnolia glauca, later growing darker, and in their third year dark reddish brown. The leaves are ovate, acute, gradually narrowed, or rarely rounded at the base, contracted into long slender points and sometimes slightly falcate at the apex; they are thin, light green on the upper and silvery white on the lower surface, quite glabrous at maturity, five or six inches long, an inch and a half to two inches broad, and are borne on slender petioles half an inch in length. When bruised they are more fragrant than those of any species of Magnolia I am acquainted with, exhaling a delicious odor of anise-seed. The winter flower-bud is two-thirds of an inch long, rather obtuse, and protected by a thick coat of yellow-white hairs. The flowers of this tree are not known to botanists, but from the size and character of the winter-bud they are probably of good size and produced in early spring before the appearance of the leaves. The fruit is slender, flesh-color, an inch and a half to two inches long and half an inch broad.

Magnolia salicifolia * grows on Mount Hakkoda in low wet situations, generally near streams, and is evidently a moisture-loving plant. Later I found a single small plant of this species near the town of Fukishima, on the hills which rise above the valley of the Kisogawa, not far from the base of Mount Ontake, in central Japan.

Magnolia salicifolia is new to cultivation, and we were fortunate in obtaining a good supply of seeds, by means of which, it is to be hoped, this interesting tree will soon appear in gardens. *C. S. S.*

* Magnolia salicifolia, Maximowicz, *Mél. Biol.*, viii., 509. Franchet & Savatier, *Enum. Pl. Jap.*, i., 16.
Buergeria (?) salicifolia, Siebold & Zuccarini, *Fl. Jap. Fam. Nat.*, i., 187. Miquel, *Prol. Fl. Jap.*, 144.

Foreign Correspondence.

London Letter.

A NEW edition, the third, of Mr. William Robinson's book, entitled *The English Flower-garden*, has just appeared. The first edition of this work was published in 1883; a second appeared in 1889, when I briefly pointed out its character and merits in GARDEN AND FOREST in 1889 (vol. II., p. 243), but this last edition contains so much that is fresh, and the book generally is so greatly improved, that American horticulturists may like to hear of it again.

Mr. Robinson is an eminent authority on English garden-making; indeed, he may be called the champion of that school of landscape-gardeners known as the purely natural or anti-formal school. He knows what he wants in the garden, and in his writings he fights lustily for it. "We shall never settle the most trifling question by the stupid saying that it is 'a matter of taste.' If the reader will come with me through these early chapters I may convince him that flower-gardening is 'a matter of reason.' I do not want him to think as I do without considering the matter for himself. The laws of all true art can only be based on the eternal laws of nature." By the term, flower-garden, Mr. Robinson really means every department of open-air gardening, save that of fruit and vegetable culture, and his book contains descriptions and pictures of almost every kind of ornamental plant or tree which he thinks deserving of a place in an English garden. It also contains chapters on garden-design, including a vigorous protest against formality and bedding, which, he says, the artist hates and cannot help hating. "This dislike is only natural and right, since from most flower-gardens the possibility of any beautiful result is shut out. . . . Why is the cottage-garden often a picture, and the gentleman's garden near wholly shut out of the realm of art—a thing which an artist cannot long look at? It is the absence of pretentious 'plan' in the cottage-garden which lets the flowers tell their own tale; the simple walks going where they are wanted; flowers not set in patterns; the walls and porch alive with flowers. Can the gentleman's garden, too, be a picture? Certainly; and the greater the breadth and means the better the picture should be. But never, if our formal 'decorative' style of design is kept to. Reform must come by letting Nature take her just place in the garden."

There is reason enough in this, but I am afraid many people who love gardening and have some pretensions to taste, too, would be unhappy in the kind of garden that Mr. Robinson would insist on. A garden should be a reflection of its owner's character and feeling, just as his house is. Some men are satisfied to pay a decorator or an artist to arrange their places after the most approved styles. But the man lives his own life, sets his own house in order to his own peculiar liking, and, if he has a garden, he will do that also. There is likely to be as much affectation in a good deal of what is called the "natural" style of gardening as in the "artificial" or formal. Mr. Robinson would "Whistlerise" garden-making. I do not wish to do more than simply to defend those who believe in making their gardens to please themselves. Even Mr. Robinson can tolerate the formal garden when it is old.

The first two hundred pages of the book are devoted to a consideration of Design, the Wild Garden, Borders, Beds and Groups, Special Culture, Alpine and Rock Gardens, Trees and Shrubs, Aquatic and Bog Plants, Beauty of Form,

Climbers, Autumn Flowers, Roseries, etc. These chapters are all most instructive reading, delightful, too, for the author clearly shows a genuine feeling for the plants he

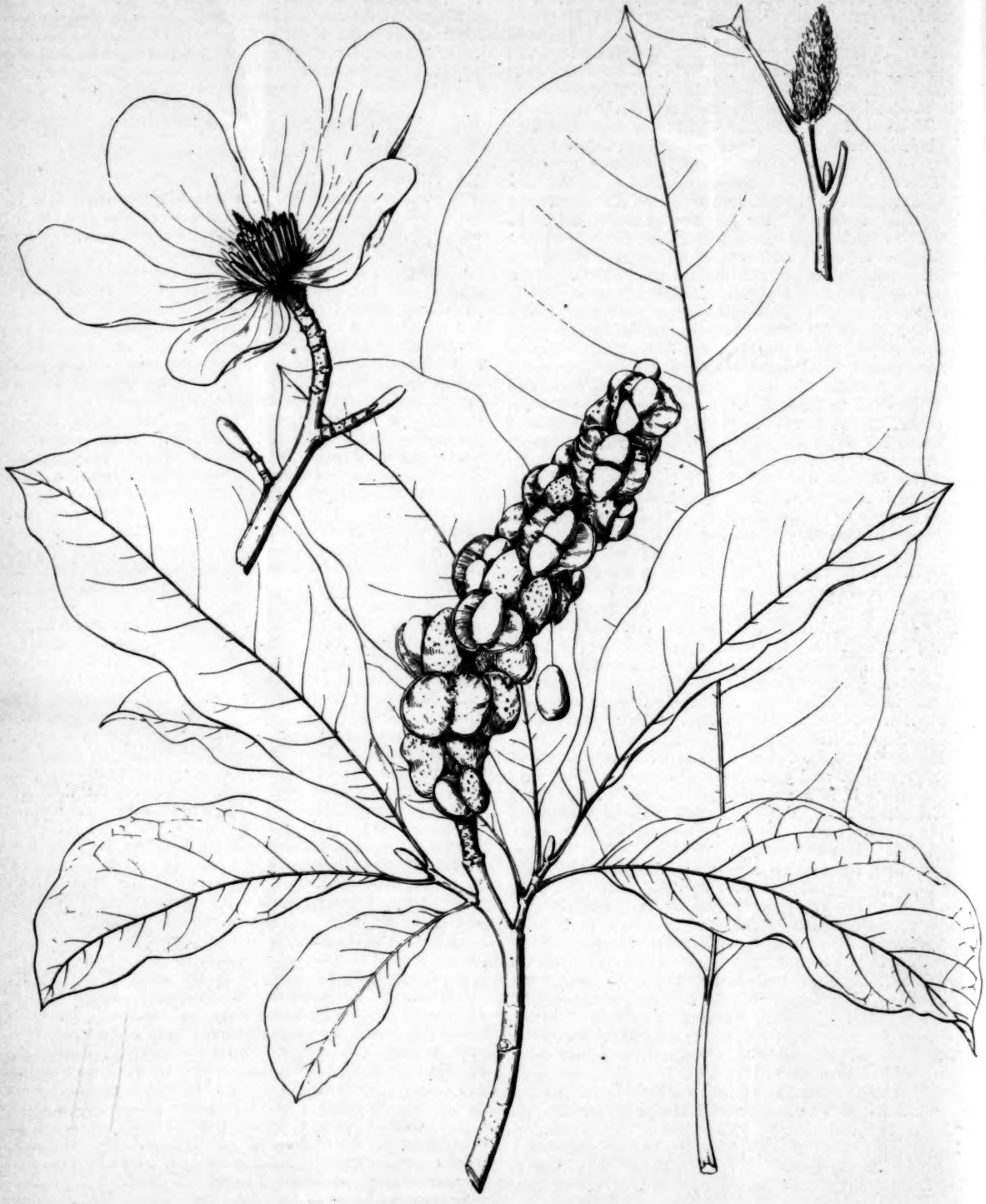

Fig. 11.—Magnolia Kobus.—See page 64.

writes about, and lays down the law of the English garden as it should be, in a most fascinating and convincing way.

The Wild Garden, which we owe to Mr. Robinson, and which is a most delightful feature in a garden when properly done, is described by him as "the placing of perfectly hardy exotic plants in places where they will take care of themselves. It has nothing to do with the 'Wilderness,' though it may be carried out in connection with that. It does not necessarily mean the picturesque garden, for a

garden may be picturesque, and yet in every part the result of ceaseless care. What it does mean is best explained by the Winter Aconite, flowering under a grove of naked trees in February; by the Snowflake growing abundantly in meadows, by the Thames sides; and by the Apennine Anemone staining an English wood blue. Multiply these instances a thousand-fold, add many different types of plants, and hardy climbers from countries as cold as our own, or colder, and one may get a just idea of the Wild Garden. Some have thought of it as a garden allowed to run wild, or with annuals sown promiscuously, whereas it does not meddle with the garden proper at all, except in attempting the adornment of bare shrubbery borders in the London parks and elsewhere—waste spaces, not gardens." This chapter contains all the directions that any one requires for the making of such a garden, and some of the illustrations of "wild-gardening" are delightful pictures. The greater portion of the book, some five hundred and fifty pages, is devoted to descriptions and pictures of and cultural directions for all that is of known value for outdoor gardening. The pictures are themselves full of beauty and interest. Mr. Robinson in all his publications has shown exceptional taste and care in the selection and execution of the illustrations. The *English Flower-garden* contains hundreds of them. The book is not limited to hardy plants, many tropical things being included, but they are such as are used for outdoor effect in summer. Thus Cycas, Musa, Ficus, Brexia, Dasylirion, Agave, etc., are among the plants recommended. There is no gardening book known to me which is so filled with sound knowledge about plants, such pleasant reading, and so delightful to look through as this on the English flower-garden; and seeing that the author has made this department of horticulture his special study for at least thirty years, and is, moreover, proprietor and editor of several papers devoted to horticulture, the excellence of his book is scarcely to be wondered at.

London. *W. Watson.*

Fig. 12.—Magnolia salicifolia.—See page 64.

Cultural Department.

Black Hamburg Grapes in the Open Air.

THE suggestion of Colonel Pearson (vol. v., p. 618), that the European Vine might be successfully grown in our Atlantic states if protected from mildew and phylloxera, prompts me to give my experience in growing these Grapes without protection, although this experience is limited, covering only the year 1892. I have for several years grown the Black Hamburg and the White Muscat of Alexandria in a small lean-to cold-house with good success, and with little care. My vines are now eighteen years old and quite large. A year ago part of the sash became badly broken, leaving the growing vine fully exposed to the weather; in this condition I sprayed them with Bordeaux mixture throughout the summer and succeeded in retaining the foliage and perfecting the fruit, as well as that on the vines under the glass.

Last spring I took the entire structure away and trained the vines on a wire trellis about four feet high and sprayed them frequently with the Bordeaux mixture, keeping them well pinched back through the season, and the foliage remained good till killed by frost. The fruit was as good as that grown under glass—possibly a little later.

My opinion is that this Grape can be grown successfully in this latitude in the open air with the above treatment, and possibly a slight protection over the roots in the shape of a good mulch of coarse manure through the winter. I think the vines are hardy enough to stand our ordinary winter weather, and if the mildew is kept away from the leaves so that they will be able to perform their proper functions throughout the season, I don't see why we can't succeed. Still, much more time must be given to testing this, and experience from various sections must be collected before we can speak with any positiveness on this matter.

Newark, N. J. *Charles L. Jones.*

Seasonable Notes.

WORK in the indoor garden at this season is varied and interesting, and comprises, besides careful attention to routine operations, such as heating, watering and ventilating, preparation for next summer's outdoor display, the plans for which should now be laid. In many amateur gardens the available space for such preparation is decidedly limited, but, however small the conservatory, a certain portion should be set aside for a propagating frame. Something of this character is almost indispensable where a variety of plants are grown. A frame some four or five feet long, placed on the side bench at the warmest end of the house, will afford proper accommodation for many cuttings and seeds of tender plants, and also provide the conditions for interesting experiments.

For many stove-plants, and especially some species considered difficult to root, there is no better medium in which to plant the cuttings than cocoa fibre. This material retains moisture for a considerable period without becoming soured, and at the same time is sufficiently porous to allow the bottom-heat to penetrate it readily. Cocoa fibre can be purchased by the barrel in most seed-stores, and may be either used in bulk to form a cutting bed, or in store pots. It is also an excellent material in which to plunge the pots or pans used for propagating purposes. Cuttings of Ficus, Crotons, Aralias and many other plants will root readily in it, providing some bottom-heat is given, and a smaller percentage of cuttings will fail than when they are planted in sand or soil.

This is a suitable time to put in Croton cuttings to furnish young stock for this year's outdoor bedding. To grow Crotons rapidly, a high temperature and moist atmosphere are required, seventy to seventy-five degrees at night being none too much, though after such treatment it is necessary to harden off these plants gradually before planting them out in June. The Acalyphas are included among select bedding plants, and, though nearly as tender as a Coleus, are much more effective. A. musaica and A. marginata are the most satisfactory sorts for the purpose, and cuttings put in at this time will soon become large enough to supply a second crop.

The stock of Cannas may be considerably increased by starting the roots in pots and afterward dividing them. In this way a much greater display is possible than when the dry roots are planted out in the garden. Canna-seeds should also be sown quite early to secure strong plants. And as the seedlings vary greatly, their development will interest the grower, though it must be admitted that really improved varieties are few, a Madame Crozy or Alphonse Bouvier only appearing at intervals. In a batch of 150 seedlings raised by me only two were found worthy of a second year's trial, though all the seeds were gathered from good varieties, many of which had been fertilized with a view to their improvement.

It is not too early to begin the propagation of Chrysanthemums, and when the young plants are sufficiently established they may be placed in cold frames until needed. Old plants of Bouvardias from which the crop of bloom has been exhausted should not be thrown away, but stored under the stages until warm weather, when they should be planted outdoors for summer flowering. The result will be a surprise to those who have not tried this plan, there being a wealth of bloom all summer. The planting out of Bouvardias in a permanent bed in the conservatory would give much satisfaction providing they do not become infested with mealy-bug, to which they are somewhat subject.

Holmesburg, Pa. *W. H. Taplin.*

Notes from the Harvard Botanic Garden.

IMPATIENS HAWKERI.—For pleasing brilliance of color there is no flower, in my opinion, to match that of this soft-wooded plant, and it blooms so freely and is so easily managed as to be indispensable in a greenhouse of the smallest pretensions. I. Hawkeri is yet much of a novelty in this country, and there are only a few places in which it is cultivated to any extent. This, however, is due to its comparatively recent introduction. It was brought to England from the South Sea Islands by Lieutenant Hawker, in 1886, and was subsequently distributed among amateurs and commercial growers by Mr. William Bull, of the King's Road Nurseries, London. It was warmly welcomed by European horticulturists, and is still highly valued beyond the water. The few who have seen it here are also well pleased with it, and there is every reason to believe that it will have a long run of popularity. It is a much-branched plant, abundantly supplied with ovate, acuminate, serrate leaves, which are opposite, or arranged in whorls of three, and dark green, while the stems, branches and petioles are of a dull red color. The flowers proceed, singly, from the axils of the leaves, borne on long, slender pedicels. They are quite flat when fully developed, nearly round in outline, and about three inches in diameter. Larger flowers are by no means rare, but the size here given is a fair average for well-grown plants. The color, deep carmine, has a lustre that baffles all description, and there is a hazy bluish tinge around the white eye which gives a soft relief to the more dazzling shade. The plant thrives best in an intermediate temperature, with shade in summer. Plants raised in early spring bloom incessantly through the summer and early autumn months, and they should be propagated later in the season to secure a supply of flowers in winter and spring. I. Hawkeri is easily increased by means of seeds and cuttings, but the plants obtained from seeds are the most shapely and floriferous.

JACOBINIA MAGNIFICA.—This is excellent among our winter-flowering greenhouse things, and a plant of some rarity in gardens. It is a native of Rio Janeiro, and was introduced in 1827. The plant is of dwarf and shrubby habit under proper treatment, and the leaves are lanceolate, bright green in color, and from six to nine inches in length. The two-lipped flowers are of a showy reddish purple color, and are borne in dense clusters as long as the leaves, and from four to six inches in diameter at the extremity of the branches. They are produced very freely during the winter months, rendering the plant conspicuously useful at a time of great floral scarcity; but, as is the case with all members of the Acanthus family, to which J. magnifica belongs, the flowers are of no account for cutting, as they fall to pieces soon after being removed from the plant. This is, perhaps, the reason that J. magnifica is so seldom cultivated. For greenhouse decoration this plant will be found eminently serviceable, and it is easily cultivated. It is best to commence each year with young plants, discarding the old ones when they cease flowering. Old plants are very often unsatisfactory, and it is unwise to take risks where space and time are limited. Cuttings taken early in spring root quickly in sandy soil with the aid of a little bottom-heat. The plants may then be placed in small pots, using any ordinary potting-soil, and grown in a warm greenhouse until the latter part of May, when, if the weather is then sufficiently mild, they should be turned out and planted about two feet apart in the open garden. Here, with a plentiful supply of water, they will make good growth before the latter part of August, when they should be taken up and potted in a light soil—three parts of the first to one each of the latter. They should be kept in a shady place and freely watered until they recover from the effects of the change; they may then be given full exposure until late in September, or such time as the external

temperature descends to a dangerous degree, when removal to a sunny greenhouse will be in order. In due time the flowers will appear, provided the temperature is not allowed to fall below forty-five degrees, Fahrenheit. This plant is also known under the generic names Cyrtanthera and Justicia; Jacobinia, however, is now considered the proper one.

Cambridge, Mass. *M. Barker.*

Correspondence.

Orchids at Short Hills, New Jersey.

To the Editor of GARDEN AND FOREST:

Sir,—Another Orchid season is at its height, and the annual winter show was again held at the United States Nurseries last week. It is well known that each succeeding Orchid exhibition at Short Hills has been a distinct improvement on preceding ones, but in no one year do Messrs. Pitcher & Manda seem to have made a greater progress than in the year ending with the present show. This was noticed, not alone in the larger number of plants and flowers and the increased number of species and varieties, but in the ability to show important plants gathered by the collectors of the establishment and flowering for the first time, and not less important, in an increasing number of seedling hybrids, some of rare beauty. Of course, it is from the gatherings of special collectors and the constant hybridization and raising of seedlings that such an establishment maintains a front rank in the trade in these highly esteemed plants.

Last week, the flowering plants were massed in the main Orchid houses on the hill-top, and so many were the flowers in the range that the houses were fairly aglow with color in all directions. Even the familiar Cypripedium house, with its celebrated collection, had an air of refined gayety from its very wealth of glistening, delicately marked flowers. This collection, which is one of the most complete in existence, seems to be continually growing, and, perhaps, has never been seen in better condition. Mr. Manda exhibited several new hybrids for the first time, last week, which certainly vied in beauty with any of the established favorites. This does not seem to be the place to describe new Cypripediums, but to convey some idea of the extent of the collection it may be said that there were 219 species and varieties in flower during the week, probably the largest number which ever bloomed at one time in any single establishment. No doubt Messrs. Pitcher & Manda would be glad to furnish a complete list of the names of this remarkable group upon application for it.

The number of striking and distinct forms of the useful Cypripedium insigne was an interesting feature of the exhibit, though in all directions were to be seen rare and unique flowers of all sections. The next house was a great contrast, with a large collection of Cattleya Percivaliana of the last year's collection, now first in flower. There were numerous forms or colorings of these; rare whites and purples, from palest flush to the deep coloring of the type. Probably all visitors stopped instinctively at the entrance to the next house, for in this was displayed the general collection of species in most bewildering profusion. The eye was held at once by a plant of regal beauty, a white Cattleya Trianæ, with flowers of the finest form and largest size and of perfect purity of color. One could well believe that this was a specimen of the utmost rarity. This was one of a group consisting also of Lycaste Skinneri alba, Lælia anceps alba, white Cattleya Percivaliana and Saccolabium giganteum album, the last said by Mr. Manda to be unique. Beyond this remarkable collection of very valuable white Orchids were to be seen flowers in confusing variety—Dendrobiums, Lycastes, Angræcums, Calanthes, Epidendrums, Odontoglossums, Vandas, etc., in many varieties. Cattleya Trianæ, of which a large importation was housed near at hand, seemed but a dull flower after so much bright color. One noticed as something unusual that no attempt had been made to enhance the effect of the Orchids by the foil of foliage-plants, an experiment which was decidedly successful, foreign foliage being seldom entirely satisfactory with any flower. Some dark corners were lightened up by masses of flowers such as Primula obconica, Lily-of-the-valley, white Azaleas and Genistas, but otherwise florists' flowers were not to be seen. However much hurried, one cannot leave this nursery without a look at the Palm-house and the lateral small houses filled with a wealth of foliage-plants in endless variety. The house of Adiantum Farleyense is especially pleasant to see. The small forest of Tree Ferns, with specimen Palms and plants, are soon to go to Chicago, where the firm will make one of the principal exhibits in Horticultural Hall. I came across a house filled with specimen plants in immense pans, being prepared for the journey, and I was forcibly struck by the fact that even the great floor-space of Horticultural Hall would scarcely allow the arrangement for best effect of the stock contained in the tropical houses here.

The enlightened self-interest which induces Messrs. Pitcher & Manda to exhibit flowers and plants on every available occasion is to be much commended; it must result in great benefit to the general cause of horticulture, an interest which lags probably as much from ignorance of what to grow as to the indifference of the average citizen. Every floral show enlightens this ignorance, and to some extent arouses the indifferent.

Those very practical persons who consider horticulture a failure without the production of edible crops must be interested in a novelty of the nursery in the way of a Potato with variegated foliage and tubers of excellent quality. As seen under glass, the plants were strong growers, and the leaves finely mottled with white in the way of the variegated Box Elder. This seems to open up a new field, and one can imagine our practical friends growing their patches of variegated Potatoes, bordered, perhaps, by masses of ornamental Beets, and pointing with pride to the happy combination of the useful with the ornamental.

Elizabeth, N. J. *J. N. G.*

White Pine in Massachusetts.

To the Editor of GARDEN AND FOREST:

Sir,—The following account of a plantation of White Pines in Topsfield, Massachusetts, may be interesting to the readers of GARDEN AND FOREST.

The land on which it was made was a pasture containing about twelve and one-fourth acres. The soil was a very poor sandy loam, a small swamp-hole being covered with bushes and Water Grass. The dry ground has been planted with Pines, a single furrow being plowed for each row of trees. The trees were quite small when transplanted from the borders of a wood lot in Boxford, where the seed had sown itself. The first trees were planted in the spring of 1885, eight to ten feet apart, in furrows ten feet apart; this first planting only occupied a small part of the lot. The planting was continued during the two or three succeeding years, until the space was all occupied. A comparatively small number of the trees died, and these have been replaced by others. There are now 5,300 trees firmly rooted. The only drawback to the plantation has been the loss of the terminal shoot on many trees, owing to the attacks of a borer. The dead leaders were carefully cut off and the trees soon formed new ones.

I found that Pines set out as early as the ground can be worked in the spring grow the best, as they have the advantage of the spring rains, which are important where the soil is porous and dries up quickly. I have taken much pleasure in watching the growth of these Pines and can recommend tree-planting as a useful recreation.

Salem, Mass. *David Pingree.*

Legislation against Insects.

To the Editor of GARDEN AND FOREST:

Sir,—I was much interested in your articles of September 28th and December 31st, about "Co-operation against Insect Invasion." But, living in a district where the gypsy moths were few, and having suffered not a little from what I considered the over-zealous action of our Gypsy Moth Commission, I cannot agree that more law, authorizing unlimited trespass, is the most satisfactory co-operation for us to invoke. We may, in dread of apprehended danger, rob ourselves of liberty and privacy. The conclusion which I have reached is, that, taking your assertion as true that the injury to "our fruit and farm crops" from the ravages of insects may safely be reckoned as amounting on an average to "a tax of ten per cent.," trained entomologists should be stimulated to prove their ability, if employed by the farmers, to reduce this average with a profit to themselves and their employers. In short, the profession of practical and scientific insect exterminators should be developed and encouraged. Against many sorts of insect invaders, the farmers have neither the education nor means and implements to cope. For instance, to gather effectively from tall trees gypsy moth and other eggs similarly deposited, demands costly ladders and special tackle for which an individual farmer would have no use on ninety-nine days in one hundred, or one year in a dozen. I would gladly spend a reasonable sum yearly on trained help in reducing insect ravages on my own grounds, when I can only imagine that the visits of officials, with no regard to my private plans and purposes,

would simply be an exasperating annoyance. Of course, public grounds and really neglected or abandoned private grounds are the proper care of the public officials. What private landowners need is instruction and help, and if the call is as great as you say, why may not the professional entomologists arrange to take their pay in produce (a share of the enlarged crop) where they cannot get cash? Cash is usually a scarce article with the farmers, but few would hesitate to agree to give a liberal share of any increase of crop they could be assured of.

Medford, Mass. *Walter C. Wright.*

Meetings of Societies.

The Western New York Horticultural Society.—II.

THE report of this meeting, which was begun last week, is continued below. Mr. William McMillan, Superintendent of Parks in Buffalo, in his usual vigorous manner, read a paper entitled

SHADE-TREES IN CITY STREETS.

Shade-trees along the borders of the streets were at one time a distinguishing feature of American cities, and this city of Rochester is a good exemplar of the practice to-day. Perhaps no city in the country has had equal advantages in soil, subsoil, natural drainage, tree-supply, good example and public spirit. If in summer we take a bird's-eye view of the town from the outlook pavilion in Highland Park, the houses seem to be nearly all hidden by the trees. The section where trees have given way to business is probably smaller than in any other city of its size.

In nearly all our cities street-trees are set out and cared for solely by the owner or the occupiers of the abutting property. Each man plants or not according to his own taste or interest in the matter. This involves much diversity and incongruity in the selection of species, in age and size, in the distance from the curb-line and from each other. Uniformity in these respects can only be obtained for any given stretch of street where the work is done by municipal authority. This method has been eminently successful in the leading cities of Europe, and in Washington, where nearly every street that has been opened and graded has been systematically planted under the central authority of a special commission.

Few persons realize the constant liability to damage and destruction to which young trees are exposed. Some idea of it may be gained by inspecting the trees on any given street and noting how few show no signs of stunted growth, scarred trunk, mutilated top, or blemish of some kind. The most common damage is the gnawing of the bark by horses, or of the branches, if within reach, but up to a certain age mischievous boys are far more destructive. If the sapling gets safely out of its swaddling-clothes it is next attacked at the roots by trenches for sewers, gas-pipes, water-pipes and electric cables, or by changes of lines or grades in laying curbstones, or flagging. In later years the largest limbs will be mutilated by telegraph line-men and their wires. Again, under ordinary conditions the trees suffer constantly from lack of moisture, because the pavement or the beaten ground sheds most of the rainfall; from lack of food, because the roots cannot penetrate the hardened subsoil; from poison by gas, because the small service pipes soon become rusted through; and from want of air, because the soot and dust of the city stops up the pores of the leaves. The unhealthy condition resulting from these and other causes invites grubs and borers, slugs and caterpillars, scale, spider and fungal blight, all in great profusion. In the streets these insect pests are safe from their natural enemies, the birds, and from the poisonous spray of the gardener's syringe.

The trees most commonly used are probably the best under average conditions. "Nothing succeeds like success," and the points contributing most to this success are ease of propagation, cheapness of nursery culture, quickness of early growth, endurance under careless transplanting, average good looks and absence of bad habits, the ability to pick up a living on a scanty diet, and patience under abuse of every sort.

After explaining the merits and defects of the various Elms, Maples, Lindens, Ashes, Beeches and several other trees, Mr. McMillan continued: Oaks require early transplanting and extra care for a long time. But, in any city, where they can be securely protected until of good size, they endure the ordinary street conditions as well as Elms and Maples. Once well established, a Black, Red or Scarlet Oak will grow as fast as the average of other street trees. The habit is always good; pruning or thinning of the branches is rarely necessary, and the glossy foliage is a special attraction all through the season.

But for foliage-effect the finest trees are the Tulip and the Plane. Fine examples of each are occasionally seen in our streets, but general experience seems to condemn them. The soft roots of the Tulip-tree make it impatient of careless transplanting, unless very young, and protection from severe frosts is necessary in clay soils until the roots get below the frost line. But once well-established in any favorable soil and subsoil, it becomes a noble street tree, well worth any extra care bestowed on it. The Plane-tree is as easily transplanted as any Maple, and, if in good soil, its growth for many years is as rapid as that of the Poplar or Willow. But mature trees are so subject to serious fungus-blight that a healthy, clean-branched tree is rarely seen. In spite of these defects, both Tulip and Plane trees deserve persistent trial and experiment.

Fifty years ago, during the Silkworm craze, the Chinese Ailanthus was extensively planted in the eastern cities. Its rank growth, sub-tropical aspect, exemption from insects, and its fresh foliage in spite of prolonged heat or drought, made it very popular. Then came a reaction, so strong that the tree is now virtually tabooed, all apparently because the flowers have an unpleasant odor. But no tree has withstood so persistently the onslaught of all the destructive influences of a crowded street. Where the subsoil is porous its roots penetrate to an extraordinary depth, and thus find food enough under the closest pavements, and moisture enough during the longest droughts. There is a place for the Ailanthus in every large city, and that, if you give it no other, is the place where no other tree will thrive.

Americans despise "the day of small things." This national foible is always prominent in the selection of trees for street planting. The general practice is to procure the largest trees that can be obtained and conveniently handled. If nurserymen cannot or will not furnish them of suitable size, they are procured from the neighboring woods if possible. It is surprising and mortifying to every experienced grower of trees, to see each spring the numerous wagon-loads which countrymen bring in from swamps and thickets, and expose for sale in our streets day after day with little or no protection from sun and wind. They are usually much larger than the most overgrown nursery stock, and the younger saplings twice or thrice the height becoming to their age, but they are bought in preference to the nurserymen's "small fry." The only roots are a few stout prongs, and they are set out in the smallest holes that will admit them, with the tree tops left unpruned or entirely chopped off. They remain standing like bean-poles for one or more years. Then they are pulled out and other bean-poles stuck in their places. It is said "experience teaches fools," but on this subject they need many years of schooling, else the class always under instruction would not be so large. Trees grown in nurseries have needful qualities of root, stem and branch, entirely lacking in the spindling sapling that has struggled for life and light in a shady thicket. But, of course, after being planted, the smaller the tree the greater the risk of serious damage by accidents that would be trifling to one of twice or thrice the size. This argument is the clincher in all discussions on this point. For this reason Elms, Maples, Horse-chestnuts, Poplars and Lindens are commonly preferred, as they can be successfully transplanted of a much larger size than Tulip-trees, Oaks or any of the nut-bearing trees. Yet the rule holds good, even in street planting, that whatever kinds of trees may be selected, the youngest that can be protected with a reasonable chance of safety ought to be preferred.

A common error is planting too near the curb-line and too close together in the row. Any young tree within four feet of the curb is ten times more likely to be gnawed by horses than one twice as far back. The roots also should be considered and given a fair chance to spread on all sides. Ample distance apart contributes not only to the health and symmetry of the tree, but also allows a pleasant play of sunshine and breeze to the people on the street. Close planting may look best for a few years, but the spread of the trees at maturity should always be provided for. The future cutting out of each alternate tree is a pleasing illusion, but in reality a sad delusion, because it is so rarely done, and never done soon enough.

Some protective guard against ill-bred horses, worse-bred boys, careless workmen on the street or adjacent lots, and the daily run of miscellaneous accidents, is necessary for years. Nothing yet invented is conveniently applicable to small trees or always effective. A temporary railing on the curb line, though unsightly, is more useful than a casing for each tree. When the trunk becomes thick enough, a strip of fine galvanized wire netting wrapped loosely around it as far up as a horse can reach is cheap, serviceable, neat, unobtrusive, and

can readily be adjusted to the growth of the tree from year to year. The damage done to street trees by horses and by careless usage of workmen about them is incalculable. Prosecution is useless, because an adequate penalty that would deter others is never imposed.

The gist of the whole matter may be summed up in the form of sententious advice. Select the kinds of trees that experience commends to you as most likely to satisfy your own taste. Select young trees only, of thrifty habit and good form. Furnish good soil in ample quantity at whatever cost or trouble. Handle and transplant with proper care and skill. Mulch and water effectively until the trees be fully established. Guard from damage by any device that will serve your purpose. Fight to the death every pest and plague as soon as it appears. Give constant watchfulness to the trees' welfare while you live, and, in making your will, impose the same duty upon the successors to your trust when you die. "Eternal vigilance is the price" of every street tree.

FERTILIZING ORCHARDS.

The paper of Professor Roberts of Cornell University, on this subject, was mainly as follows:

When our arable land was cleared of its forests a large amount of soluble plant-food was in the soil, the product of the ages of growth and decay. Even the subsoil, to a considerable depth, was filled with roots which disappeared very slowly and formed natural drainage tubes, which not only relieved the land of much of its surplus water, but also allowed the air to penetrate into the earth and hasten chemical action so that plant-food which was partially inert became available.

In those early days the lands situated in a climate adapted to fruits were extremely productive. The orchards were usually separated by considerable areas of timber; importation of fruit-trees had not yet begun, and many of the enemies of the orchard were in those early days entirely unknown. All this has changed. The forests have been swept away, the natural drainage of the land has been destroyed, and, in most cases, nothing has been substituted for it. The best of the plant-food has been removed from the soil, and more than this, in developing new and better varieties of fruit we have succeeded too often in producing a tree of less sturdy constitution. In orcharding, then, we are met with the following conditions: land, water-logged; available plant-food, scarce; insect enemies, multiplied; fungus growth, abundant; sweeping winds and changeable weather; trees, delicate in character.

In many orchards the cheapest way to overcome some of these difficulties and secure available plant-food would be by the intelligent use of drain-tile. There is an abundance of food yet in the soil. A poor clay soil in Tompkins County was analyzed and found to contain in the first nine inches 3,094 pounds of phosphoric acid, 3,410 pounds of potash and 1,876 pounds of nitrogen. Such a soil certainly cannot be said to be deficient in plant-food. What might be said of it is, that quality of plant-food which is demanded for the highest character of plants is deficient. There would be no difficulty in raising a very large crop of Mulleins or Field Pines on such land, therefore it cannot be said to be exhausted. Twenty years in hay—one ton per acre, ten in wheat—twenty bushels per acre, ten in corn—forty bushels per acre, and ten in oats and barley—forty bushels per acre, with straw and stalks, would carry in this fifty years' rotation, from each acre of land, plant-food valued commercially at 404 dollars per acre. Having removed all this vast amount and returned only a quarter or, at most, a half of it to the land, it is no wonder that our orchards do not produce abundantly when set upon this partially depleted soil.

In our numerous experiments with the cultivation of soil, we naturally are attracted to the one that has given marked results by culture alone. Then, by improved implements and superior skill, we may get the plant-food needed cheaper than by any other method.

Again, lands may be so poor and light that comparatively little plant-food can be obtained even by the most skillful cultivation. In these cases some positive addition of plant-food should be made to the soil. To secure this supply farm manures stand in the front, because they can be had at little or no cost. The feeding of animals on the farm, under good management, results in profit, without taking into consideration the value of the manure produced by them. But farm manures are not well balanced—that is, they are too high in nitrogen for the mineral matter they contain, and so should always be used in small quantities, and, if possible, should be well rotted before they are used. Nitrogen can be secured in other ways than by purchase. The sowing of Clover or of Vetches, or of other leguminous plants, will furnish not only all the nitrogen the orchard should have, but it will also bring up much mineral matter from the soil which otherwise would not have been used, and this mineral matter, when given up to the plant, will form soluble food of which the fruit-tree can avail itself.

Again, the fertility of the orchard is often less important immediately than the amount of water which is present. The trees should be set at wide intervals, and the land should be kept moist on the surface by cultivation. Frequent midsummer tillage forms a mulch and conserves moisture. The orchard should be kept shaded by plants in the after part of the season, and these plants should be of such a character that they will not die until after the dry fall has past. It is of prime importance that water be present in the soil in order that the plant-food may be taken up by the trees. Many an orchard has sufficiently available plant-food, but lacks in water at that critical period when the trees are making fruit. If there is no water present some forms of fertilizers, such as nitrogen, are positively detrimental if they are present in abundance.

To sum up, the factors of success are: (1) The removal of water where it is too abundant; (2) The conservation of water where it is deficient; (3) The use of the refuse of the farm and nitrogenous plants; (4) The use of potash and phosphoric acid in forms that are readily available; (5) Surface culture where it is applicable to the conditions present; (6) Reducing the number of trees per acre; (7) Withholding tillage and nitrogen, and increasing the mineral matter until that point is reached where the tenderest trees develop hard wood, firm bark and mature fruit-buds; (8) Encouraging the cultivation of forest-trees and wind-breaks, so that the winds may, in a measure, be prevented from sucking up the moisture of the land; (9) Mulching the earth when the orchard is open land, and keeping a covering of porous earth at the surface through the first half of the season; (10) Fitting the land and fertilizing it in the best manner possible before the orchards are set.

BREVITIES.

I am positive that some of our older fruits that have been neglected will become popular again. There are several excellent varieties of Pears which have been tested and proved valuable, and which have passed out of use because they are not handsome, although the quality is better than many of those now grown. There is an increasing demand for quality rather than for appearance.—*W. C. Barry.*

By extra feeding and careful spraying with copper compounds, I have grown, in succession, three heavy crops of Spitzenburg apples on trees which had previously failed almost entirely.—*Geo. T. Powell.*

In order to have good, hard wood, healthy leaves and well-developed buds, we must rely upon potash and phosphoric acid.—*S. D. Willard.*

There is a tendency to grow small fruits too thickly. Raspberries, Blackberries, Currants, etc., should be grown in hills in check rows. Even Strawberries are not at their best in matted rows. Plants resist drought better when not too thick. —*J. H. Hale.*

The city market will never be overstocked with the best quality of fruit. There is always a sale in Hartford, Connecticut, for the Black Defiance Strawberry on account of its high quality. It is not a productive plant, but it never sells at less than twenty-five cents a quart. Chemical fertilizers give me firmer, higher-colored and better-flavored fruit.—*J. H. Hale.*

The Victoria Currant will remain on the bushes until other varieties are out of the market, and for that reason it is frequently very profitable and sells for as much as the finer varieties do early in the season.—*J. H. Hale.*

Soil has much to do with success with Currants. On loose, loamy land they do not yield a profitable crop oftener than once in five years. On heavy upland they are very profitable. —*Walter Tabor.*

Of Japanese Plums, Botan, Abundance, Satsuma and Burbank are the most satisfactory. The quality is not equal to that of the European varieties, but they are attractive in appearance and keep well, which gives them the advantage over ordinary varieties, and they ripen up well even if they are picked a little green. I consider this the most important type of fruit that has been introduced within the last twenty-five years.—*L. H. Bailey.*

The worst orchard diseases in western New York in 1892, named in the order of their destructiveness, were apple-scab, plum-fruit rot, pear-scab, quince-fruit spot. Some correspondents estimate that from fifty-five to seventy-five per cent. of the mature fruit in Apple-orchards were affected by scab so much as to effect its market value, and the loss of a considerable amount of fruit which failed to reach

maturity was due indirectly to its attacks. Among the pears affected severely were Bartlett, Seckel, Flemish Beauty, White Doyenne, while Angouleme and Anjou were less severely attacked. In some instances the entire crop of Seckel pears was lost. The fruit-rot of Cherry, Plum and Peach, which is caused by the same fungus, was specially destructive to plums and sometimes destroyed half the crop. Lombard, Gueii, Bavay's Green Gage and Yellow Egg were mentioned specially as being badly attacked.—*Report of Committee on Botany and Fruit Diseases.*

Notes.

Probably house-plants are more frequently injured by too much than by too little water, but now that the days are getting longer, it is advisable to push them into growth, and, therefore, the supply of water should be increased with the supply of light.

Mr. Ryokichi Yatabe, of Tokio, has recently issued the third part of Volume I. of his *Iconographia Floræ Japonicæ*. The text, in Japanese and English, is illustrated by full-page engravings, and plants, indigenous to Japan, belonging to seventeen orders, are described.

A recent issue of the *Moniteur Viticole* brings us the statistics of last year's vintage throughout France. Fifty thousand more acres were under vineyard cultivation than in 1891, but the estimated yield was less than in that year, although superior to the yields of 1889 and 1890. In the seventy-six departments where wine is made, the total product of 1892 is said to have been about 654,348,015 gallons, as against 679,115,000 in 1891 and 616,660,000 in 1890. The vintage of 1892 is said to have been remarkably good in quality, alike in the Burgundy districts, in the Marne districts, where most of the champagne is made, and in the Pyrenean regions.

Monsieur Naudin sends us fresh seeds of Phœnix Senegalensis which, he writes, fruited last season for the first time in Provence, the flowers having been fertilized through the agency of insects with pollen from the allied Phœnix Canariensis. The fruit of Phœnix Senegalensis is a small black date with soft sweet flesh and a flavor similar to that of the dates of commerce, the fruit of Phœnix dactylifera. The flesh, however, is so thin and the nut so large, that the fruit is scarcely edible, although cultivation, or perhaps hybridization, with Phœnix dactylifera will possibly, as our learned correspondent suggests, improve it. The experiment is certainly worth making.

From the annual report of Her Highness the Maharana of Oodeypore, as quoted in the *Gardeners' Chronicle*, it appears that native ladies are very fond of decking their hair with the gorgeous scarlet flowers of Butea frondosa. When this plant is in flower all the jungles look like a blaze of fire. In some jungles, too, there are Bauhinias of sorts which come in flower at the same time as the Butea. The lilac flowers of the Bauhinias and the scarlet flowers of the Buteas are very beautiful. Lantana alba and Poinciana pulcherrima growing side by side on the hill, together with Gloriosa superba, make the natural blending of color in this wild country truly grand. The dripping ghauts are filled with such Ferns as Adiantum Capillus-veneris, A. caudatum, Actiniopteris radiata, a handsome little silvery Fern, Cheilanthes farinosa and Pteris longifolia, growing almost side by side.

Of the Geneva Grape, sent out six years ago by Messrs. R. G. Chase & Co., Mr. Carman writes that it is one of the few varieties containing the blood of Vitis vinifera which thrive on his grounds. The striking characteristic of the berries is their translucency. So nearly transparent are they, that the seeds of those grown in paper bags can be distinctly seen. The skin has little bloom and is of firm texture, although thin; the berry is large, often obovate, with few seeds, usually two, and these separate easily from the flesh, which has an agreeable, sprightly flavor. It ripens early and seems to resist mildew. Mr. Josiah Hoopes is quoted as saying that it perfected last year a larger crop than any other variety on his grounds. Its originator claims that the Geneva is the result of a cross upon a wild Labrusca vine fertilized with Muscat of Alexandria, the progeny being again crossed with Iona. The berry is a clear amber color.

We have received the first issue of *The Western Garden*, a handsomely printed quarto of sixteen pages, published in South Denver, Colorado—a monthly journal edited for and adapted to the peculiar needs of horticulture in the dry climate of the west. On the title-page is a half-tone print from a photograph of the Rocky Mountain Columbine, the state flower of Colorado, and apparently Aquilegia cœrulea, although the editor tells us that it is "a different variety from any Columbine grown in the east, the size of the blossom being much larger, and the plant of much thriftier and much hardier growth." Two capital illustrations, representing Chrysanthemum niveum and Mrs. E. T. Adams, beautify the pages of this first issue of our new contemporary, which has a useful field to itself, and the best opportunity to make known the horticultural value of many Rocky Mountain plants still unfamiliar in gardens, especially the numerous alpine species which form the most interesting feature of the Colorado flora.

According to the annual crop report of the Statistician of the Department of Agriculture, the Dakotas now produce more wheat than was grown in the United States fifty years ago. The exports of last year were greater than the aggregate product twenty-five years ago. The yield per acre of old lands is increasing, and that of new lands decreasing, and new wheat lands are annually brought into cultivation. Granitic New England, in the few fields cultivated, obtains more per acre than the richest soils of the west. The yield declines fastest in the newest and richest soils, not because of soil exhaustion, but because of its fatness in stimulating the growth of weeds. The census of 1880 made an average yield of wheat of 13 bushels; that of 1890, when the season was far less favorable and prospects apparently much worse, gives a yield of about 14 bushels per acre. With good cultivation and fertilization it should be increased to twenty bushels. Individual farms in Maine report between thirty and forty bushels per acre; some in New York report thirty-two or more; and many in Illinois and North Dakota return between twenty and thirty bushels per acre. The rate of yield could readily be increased one-half; but it will not be till the virgin soils are scratched over after the prevailing practice, misnamed cultivation. The present breadth of wheat, under wise and skillful cultivation, would suffice for double our present population.

One who cares for choice fruits and vegetables may at this season gratify his taste in New York by purchasing strawberries at three dollars a dozen, and peaches and apricots from the hot-houses at proportionate prices. He can buy the finest Indian River or Halifax county oranges, cut on the branch with a few leaves, at three dollars a dozen, while Black Hamburg grapes can be had for two dollars and a quarter a pound. Neighboring growers can furnish good mushrooms for a dollar a pound, Florida sends string beans; rather stale artichokes come from Algiers at forty cents each, and Germany sends Brussels Sprouts of good quality. It appears, however, from a recent article in the New York *Tribune* that in Paris, at the same season, similar luxuries will make as heavy a demand upon his purse. By paying from eight to ten dollars a peck, a Parisian can have fresh green peas brought from Algiers. Artichokes from the same region are four or five dollars a dozen. A large basket of string beans costs twelve dollars, and a bunch of asparagus five. A basket containing six dozen black truffles from Perigord commands twenty dollars, while the same number of white truffles from Milan brings the same price. Fashionable flowers and fruits are quite as costly. The pink Lilac, now in such high favor, costs three dollars a spray, and dark damask Roses—"Roses de velours"—sold at the New Year for five dollars each. Large strawberries are a dollar and a half a dozen; a small basket of grapes from Fontainebleau costs five dollars; red or white currants are three dollars a pound; hot-house peaches three dollars apiece, while for hot-house pine-apples the happy buyer can pay from eight to ten dollars each.

Catalogues Received.

R. Douglas & Sons, Waukegan Nurseries, Waukegan, Ill.; Wholesale Catalogue of Hardy, Ornamental Evergreens, Shade and Ornamental Trees, Evergreen, Forest and Ornamental Tree Seedlings, Tree Seeds.—Ellwanger & Barry, Mount Hope Nurseries, Rochester, N. Y.; Fruit and Ornamental Trees, Roses, etc., New Supplementary Catalogue of Rare and Choice Trees, Shrubs and Roses.—Wm. Baylor Hartland, 24 Patrick Street, Cork, Ireland; Flower and Vegetable Seeds.—Johnson & Stokes, 217-219 Market Street, Philadelphia, Pa.; Novelties and Specialties in Vegetables, Choice Flower and Vegetable Seeds.—P. C. Lewis, Catskill, N. Y.; Combination Force Pump, Powell's Fertilizers.—J. T. Lovett & Co., Little Silver, N. J.; Fruit Novelties and Wholesale Price List of Small Fruits, Fruit Trees, Ornamental Trees and Shrubs.—W. W. Rawson & Co., 34 South Market Street, Boston, Mass.; Vegetable and Flower Seeds.—James Vick's Sons, Rochester, N. Y.; Vick's Floral Guide.—Wood Brothers, Fishkill, N. Y.; Trade List of Plants and Rooted Cuttings.